

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference WPP92005 | FOR FURTHER ACTION | |
| | See Form PCT/IPEA/416 | |
| International application No. PCT/US2004/025954 | International filing date (day/month/year) 11.08.2004 | Priority date (day/month/year) 11.08.2003 |
| International Patent Classification (IPC) or national classification and IPC C08K5/372 | | |
| Applicant BRIDGESONE/FIRESTONE NORTH AMERICAN TIRE, LLC | | |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

- sent to the applicant and to the International Bureau a total of sheets, as follows:
 - sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

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| Date of submission of the demand 02.03.2005 | Date of completion of this report 07.09.2005 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016 | Authorized Officer Rose, E Telephone No. +31 70 340- |



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IAP20 Rec'd PCT/PTO 10 FEB 2006

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
 - a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

Description, Pages

1-12 as originally filed

Claims, Numbers

1-10 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|------|-------------|
| Novelty (N) | Yes: | Claims 10 |
| | No: | Claims 1-9 |
| Inventive step (IS) | Yes: | Claims |
| | No: | Claims 1-10 |
| Industrial applicability (IA) | Yes: | Claims 1-10 |
| | No: | Claims |

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

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V) Re Item V : Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

V.1) PRIOR ART

Reference is made to the following documents :

D1 : DE3501697

D2 : US2001051677 (cited by the applicant : family member of US6554037)

D3 : EP0943466

V.2) NOVELTY - Art. 33(2) PCT

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-10 is not new in the sense of Article 33(2) PCT.

V.2.1) Claims 1-7

Document D1 discloses a rubber composition which comprises (A)100 parts by weight of a mixture of butadiene-acrylonitrile copolymer with different acrylonitrile content and a terpolymer of ethylene, propylene, and a diene (ethylidene norbornene or hexa-1,4-diene) and (B)10 parts by weight of a ether-thioether such as Vulkanol 85® as described in example 1.

The obtained covulcanisates are suitable as pipe coverings, conveyor belt coverings, or drive belts (p.5, I.4-5). They show a good resistance to ozone (p.3, I.6 ; p.5, I.2 : p.10, I.6).

Consequently, the subject-matter of claims 1-7 is not new over D1.

V.2.2) Claims 8-9

Document D3 discloses a tire having a rubber composition as an insert in its sidewall region which is comprised of (A)100 parts by weight of diene-based elastomer and (B)0.5 to 10 phr of dithiodipropionic acid (claim 1).

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The acid enhances the stiffness of the sulfur vulcanized rubber composition of the insert as well as to endeavor to substantially maintain a relatively low hysteresis ([0019]).

Consequently, the subject-matter of claims 8-9 is not new over D3.

Therefore, only claim 10 is new.

V.3) INVENTIVE STEP - Art. 33(3) PCT

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 8-10 does not involve an inventive step in the sense of Article 33(3) PCT.

V.3.1) Claims 8-9

Note that if the Applicant amends the claims by specifying in claims 8-9 the nature of the thio-containing surfactant by "ether thioether", claims 8-9 would be new but not inventive. See objection below.

Document D2, regarded as being the closest prior art to the subject-matter of claims 8-9, discloses sidewalls of vehicle tires made from a vulcanized rubber composition comprising (A)an elastomer (100 phr) and (B')a mixture of an alkoxylated alkanol surfactant such as R-O-(C₃H₆O)_x-(C₂H₄O)_y-H (claim 3) (0.3-5 phr) and an alkali metal alkyl-sulfonate or alkyl-sulfate antistatic agent (0.5-10 phr). (B') permits formation of a varnished film on the tire sidewalls upon exposure to ozone which gives a non-stained glossy appearance to the sidewalls ([0011]-[0013]).

The difference between the application and document D2 is the nature of the surfactant (B).

The effect of this difference is not shown by the comparative examples of the application, as there are no comparative examples of a composition containing (A)+(B').

The problem to be solved by the present invention may therefore be regarded as to

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provide an alternative vulcanized tire sidewall.

The solution proposed in claims 8-9 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

Document D1 discloses a rubber composition which comprises (A)a rubber and (B)a ether-thioether such as Vulkanol 85® (example 1). The obtained covulcanisates, suitable as pipe coverings, conveyor belt coverings, or drive belts (p.5, I.4-5), show a good resistance to ozone (p.3, I.6 ; p.5, I.2 : p.10, I.6). The skilled man who wants to find an alternative vulcanized tire sidewall, would try different alternatives for the surfactant (B) : the surfactant (B') of document D2 is a mixture of 2 compounds, one containing the function alkoxy (C₂H₄O) and the other containing sulfur, and those 2 functions are contained in the surfactant (B) of document D1, thus the skilled man would apply the surfactant (B) of document D1 instead of (B') in the rubber composition of document D2 without any inventive skills.

Thus the subject-matter of claims 8-9 is not inventive.

V.3.2) Claim 10

The method, for forming a varnished film on the outer surface of the sidewall comprising the vulcanized elastomer composition (A)+(B') exposed to ozone, is known from **document D2** (claim 38 ; [0066]).

Thus the subject-matter of claim 10 is not inventive.

V.4) Industrial Applicability - Art. 33(4) PCT

Since rubber compositions are important industrial products, industrial applicability can be acknowledged.

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VII) Re Item VII : Certain defects in the international application

To meet the requirements of Rule 5.1(a)(ii) PCT, documents D1 and D3 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

**VIII) Re Item VIII : Certain observations on the international application :
CLARITY - Art.6 PCT**

VIII.1) Claims 2 and 3 are unclear : the term "further" implies that the rubber composition of claim 1 comprises an additional component to the thio-containing surfactant of claim 1. But in fact it is the same.

VIII.2) Claims 3 and 7 and description p.5, l.27 are unclear : "n" used in the formula, is not defined.

VIII.3) Claims 1 and 9 are unclear : claim 1 uses "thio" and claim 9 uses "sulfur" ("sulfur" is more general than "thio") to define the same component.